RESOURCES IN MEN

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THE war has progressed far enough to convince most people that its outcome is no longer dependent upon the state of preparation before it began, but rather upon the future endurance of the belligerents. This endurance relates, first, to resources in men, and, second, to resources in wealth. It is proposed in this article to analyze with some care the question of resources in men, for there can be no doubt that the struggle has reached a stage with some of the belligerents where this question is causing anxiety.
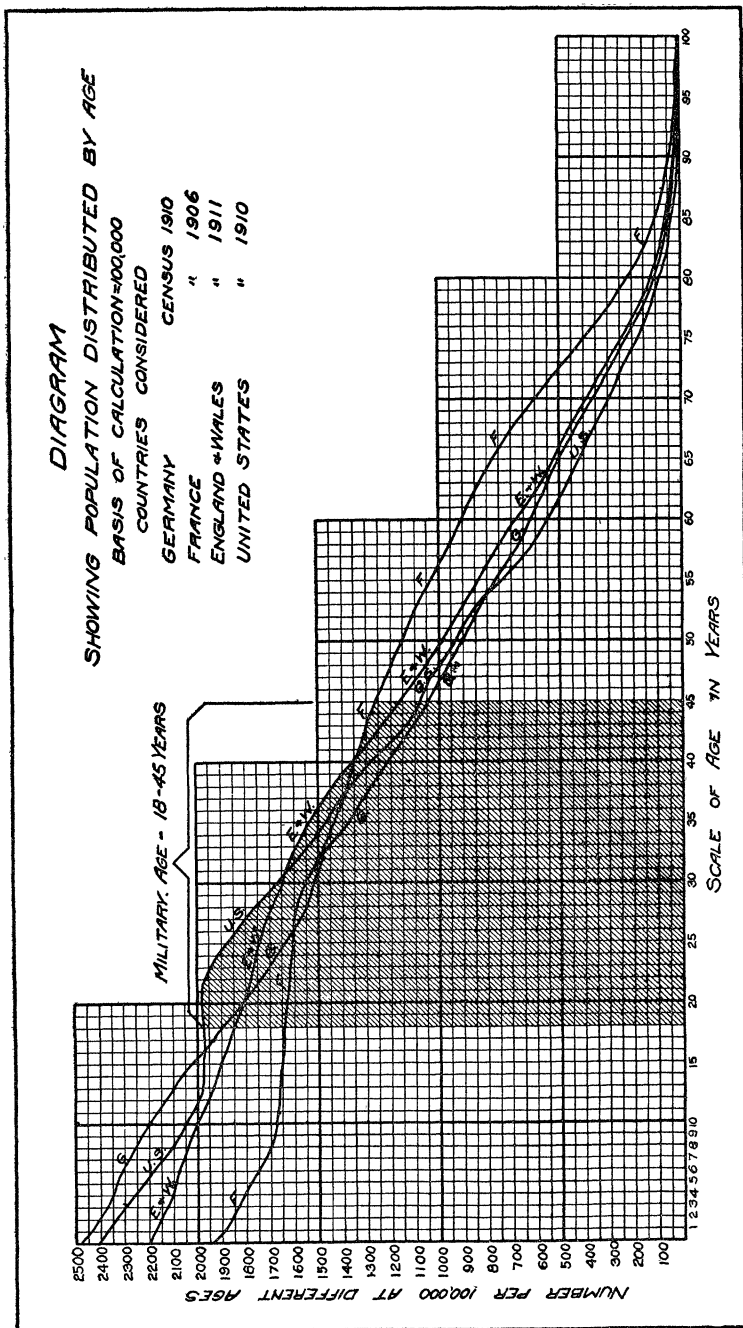
To begin with, what proportion of the total population is available for military service? That depends both upon the age limits and the physical standard in force in the country considered. When there is a superabundance of material, very rigid qualifications are likely to be insisted upon. Thus in our country in time of peace the age limits are 21–35, extending to 18 with the consent of the parent or guardian; but the requirements are so strict that, even within these limits, which cover only the most robust period of life, three out of four applicants on the average are rejected.[1]

The standard military age the world over has long been 18–45, the upper limit being at the forty-fifth birthday. It is universally recognized that approximately two fifths of the total population fall within these limits. The exact figures for certain countries and censuses are exhibited in the following table and shown graphically on the accom-

PROPORTION OF POPULATION BETWEEN SPECIFIED AGE LIMITS

Specified Age Limits	England and Wales, Census 1911	Germany, Census 1910	France, Census 1906	United States, Census 1910
0 to 14 inclusive...........	30,637	34,051	26,021	32,098
15 to 59 inclusive...........	61,327	58,073	61,398	61,141
60 and upward..............	8,036	7,876	12,581	6,761
For all ages................	100,000	100,000	100,000	100,000
18 to 44 inclusive...........	42,406	39,727	40,190	43,100
17 to 49 inclusive...........	47,756	46,700	47,901	49,900

[1] Probably this is not a true criterion of the military availability of the population, for the reason that in this country, where such high wages prevail, it is generally men of defective working ability that seek enlistment.

DIAGRAM

SHOWING POPULATION DISTRIBUTED BY AGE

BASIS OF CALCULATION=100,000

COUNTRIES CONSIDERED

GERMANY   CENSUS 1910
FRANCE   "   1906
ENGLAND & WALES " 1911
UNITED STATES   " 1910

MILITARY AGE - 18-45 YEARS

NUMBER PER 100,000 AT DIFFERENT AGES

SCALE OF AGE IN YEARS

panying diagram. For purposes of comparison of different countries, both the table and diagram are based upon a population of 100,000. To pass from these to the actual figures for any country, multiply the quantities taken from the table or diagram by the total population divided by 100,000. The age limits, 17–50, are separately given in the table because of their actual adoption by the Confederate States in the American Civil War.

The graphic presentation of these results is instructive and easily understood even by the uninitiated in that method of illustration. To find the proportion of 100,000 at a particular age for any of the four countries, look for the age in the scale at the bottom of the diagram. Then follow the corresponding vertical line until it intersects the irregular line, or curve, for the country considered. Next follow the horizontal line through this point of interesection to the vertical scale on the left and read off the corresponding number. The area of the diagram bounded by the vertical and horizontal. scales and by any one of the curves represents 100,000 population; and the shaded area the proportion within the age limits, 18–45.

We may now make clear what puzzles a great many. We think of the immense numbers born each year, or arriving at military age, and it seems as if the supply must be rapidly increasing. We do not so readily see the annual decrease which offsets it. Look on the diagram at the vertical line representing age 17. Next year that will pass over into 18, the military age. But at the same time the line 18 has passed into 19, slightly shortened, however, through the deaths that have occurred during the year. In like manner 19, similarly shortened, has passed into 20. So on through the whole series until finally 44 passes into 45 and out of the military age altogether. With constant conditions as to the birth and death rates, the sum of the numbers by which the several years are shortened by death and of the numbers passing over into 45, or out of the military age, exactly equals the numbers passing in from 17 to eighteen. Thus it is a continuous process of gain and loss, the balance remaining constant for a fixed condition of the population.

Particularly interesting are the characteristic features of the population movement in different states, as disclosed by the diagram. The high birth rate of Germany and the low birth rate of France are clearly indicated. Germany is a nation high in its percentage of youth; while France is high in the middle and old age periods. England falls between. The United States begins with a curve similar to that of Germany; but from about the age of 13 it ceases to decline and continues practically horizontal for the next ten years, which places it, at 23, far above any other country. This is entirely due to the influx of immigrants, which is strongest in the ages 15–30, with a maximum at 21–25. The reverse effect would undoubtedly be apparent in countries from which there is a proportionately heavy emigration.

The proportion of population within the age limits 18–45 being about 40 per cent. of the total, and about half (in Europe a little more than half) being women, there remain one fifth men, as already pointed out. But not all of these are available for military service. Some are physically unfit and some have to be retained at home to do the necessary work. What these exemptions amount to depends upon the physical standard adopted, and upon the requirements of home service and the ability of the non-military population to perform it. In the Confederate service at the close of the Civil War a most rigid draft was enforced. In a white population east of the Mississippi, of about 3,600,000 (Negroes were not taken into the service to any appreciable extent) the number of exempts which had to be allowed between the ages 17 and 50 was 87,863, or about 10.3 per cent. of the male population within these limits.

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Name of Country	Latest Estimates of Population		18 to 45 Years, 16 %	17 to 50 Years, 18.8 %	Arbitrary, 10 %
Germany	(1916)	67,812,000	10,850,000	12,740,000	6,718,000
Austria-Hungary	(1910)	51,814,000	8,290,000	9,741,000	5,181,000
Turkey	(1910)	20,000,000	3,200,000	3,760,000	2,000,000
Bulgaria	(1914)	4,750,000	760,000	873,000	475,000
Total		144,409,000	23,1000,000	27,123,000	14,374,000
Russia	(1912)	173,356,000	27,737,000	32,591,000	17,336,000
United Kingdom	(1913)	46,185,000	7,390,000	8,683,000	4,619,000
France	(1911)	39,602,000	6,336,000	7,445,000	3,960,000
Italy	(1911)	35,239,000	5,638,000	6,625,000	3,524,000
Belgium	(1912)	7,571,000	1,211,000	1,423,000	757,000
Servia	(1914)	4,547,000	732,000	855,000	455,000
Montenegro	(1914)	516,000	83,000	97,000	52,000
Colonies		25,000,000	4,000,000	4,700,000	2,500,000
Total		322,016,000	52,127,000	62,419,000	33,203,000
Roumania	(1914)	7,508,000	1,201,000	1,412,000	751,000
Greece	(1914)	4,821,000	771,000	926,000	482,000
Total		12,333,000	19,720,000	2,338,000	1,233,000

The figures in column 2 are from the Almanach de Gotha, except those for the Balkan States, which are from the Statesman's Yearbook. They are given to the nearest thousand only. The Belgian, Serbian and Montenegrin population is nearly all not available. The estimate for ''Colonies'' is purely arbitrary, but it would be manifestly wrong to make the basis that of actual population.

For the age limits 18–45 the percentage may have been as low as ten, but this must be considered as a minimum under any circumstances. It would ordinarily be considerably higher. Most of the exempts in the Confederate service were such as were physically or mentally unfit, as negro slave labor made it unnecessary to retain many white men for work

at home. But this exceptional resource is now nowhere available, and an additional percentage must therefore be deducted. What this should be it is difficult to say, but it is certainly not less than ten per cent.

It thus results that the male population of military age (20 per cent. of the whole) must itself be reduced by at least 20 per cent. This leaves 16 per cent. of the total population between the ages 18 to 45. A similar deduction gives 18.8 per cent. for the age limit 17 to 50. These figures must be considered maxima which could be realized only under the stress of an emergency so great as to sweep into the ranks practically every available man. In the Confederate service the age limit 17–50 was undoubtedly exceeded, and it was a common saying in those days that the South was robbing both the cradle and the grave to replenish her vanishing armies. Even in the northern army there were enrolled over 100,000 boys of fifteen years or under. Many authorities consider that 10 per cent. of the total population is the practical limit available for the recruitment of armies. The application of these percentages to the several belligerent states is shown in the table on p. 90.

Right here it is important to repeat the caution given in a preceding paragraph that the annual increments to the military age do not mean corresponding increase in the number of men available. How easy it is to make a mistake here is shown by the following recent utterance in one of our most widely read and authoritative periodicals:

Germany is growing at the rate of a million a year. That means at least 500,000 fresh soldiers coming into manhood annually.

Quite evidently, from what we have shown, it means nothing of the sort. The population curves (see diagram) are practically the same for any two consecutive years. Applying these to the actual population of any country in which the population is increasing (of course there is no increment in a stationary population like that of France) it will be found that the annual increment is distributed throughout the whole period of life in practically the same proportion as shown in the diagram. This gives a maximum of 16 per cent. available for duty between the limits 18 to 45. Applied to the assumed annual increase in German population of one million (it is actually a little less than that) we have 160,000 instead of the 500,000 assumed by the author quoted, and even this is probably too great.

Thus far we stand on comparatively sure ground. But we find ourselves on very slippery ground the moment we attempt to determine the extent to which the present war is drawing upon these resources. The best estimates that can be made are largely guesses. We shall here make two arbitrary assumptions which we consider maxima and minima and somewhere between which the actual facts probably lie. Assume

first that the maximum number of men under arms and available for duty when the war is at its height is, for the Allies, 8,000,000 men, and for the Central Powers, 6,000,000. Assume also that the annual losses from all causes (killed, wounded, missing, etc.) will average for the Allies 3,000,000, and for the Central Powers, 2,500,000. Under these assumptions the draft on available resources, in order to maintain maximum strength and make up for losses, will be at the end of the second and third years of the war:

For the Allies, 14,000,000 and 17,000,000.

For the Central Powers, 11,000,000 and 13,500,000.

Now let us assume that the maximum strengths will be, for the Allies 10,000,000, and for the Central Powers 8,000,000; and the average annual losses, for the Allies 4,000,000 and for the Central Powers 3,000,000. The figures at the end of the second and third years will then stand:

For the Allies, 18,000,000 and 22,000,000.

For the Central Powers, 14,000,000 and 17,000,000.

Comparing these figures with the footings in the table of " Resources in Men," the drain upon these resources, even under our maximum assumptions, is seen not to be excessive. But this way of putting it is possibly too favorable to the Allies. If their resources could be pooled so as to be available in as complete a sense as are those of the Central Powers, the showing would be more accurate. But this is not the case. The resources of France, for example, will begin to give out while those of Russia are still not taxed to a third of their capacity. Yet the great Slavic reservoir of men is not available for the battlefields of France. Whether it can accomplish its full purpose by bringing pressure to bear upon the eastern front may be open to doubt; but that nevertheless is the rôle which it must play and it must evidently continue to be a part of the burden upon Great Britain and France to help furnish the funds for equipping the hosts of their great eastern ally.

It will be observed that in our estimates we have made no allowance for a possible " robbing of the cradle and the grave," as in the case of the Confederacy during the American Civil War. The additional resources which might thus be made available are quite beyond our powers of estimate. But our study does clearly indicate that the one danger which either side has least to fear, if the present line-up continues, and if measures are made effective for getting men into the ranks, is a deficiency of fighting men. If the crushing weight of either side could be brought to bear against any one unit of the other, as actually happened in the case of the Central Powers against Belgium, Serbia and Montenegro, the situation, so far as such units are concerned, would be very different. But at present that seems not very likely on any large scale. The whole resources are being brought into play over a wide front and the likeli-

hood of separate exhaustion of any portion is rather remote. Neverthe-less prophecy is too hazardous to indulge in. It is safe to say this, however, that the strength of either side—or its weakness—is to be measured more directly by its ability in organization, in the production of munitions, and in the efficient marshalling of resources than in the number of men available. This matter of organization goes altogether beyond the mere creation and handling of armies; it is coming to embrace the whole industrial life of the state itself. It has enabled the Teutonic Alliance, with less than half the resources in men of their opponents, to make decidedly the better showing thus far.